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ITS FREQUENT UTILITY, AND AN APPLIANCE FOR PREVENTING THE CHIEF ANNOYANCE ATTENDING A PERMANENT OPENING IN THE BLADDER.

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The operation of opening the bladder by an incision above the pubic symphysis is thoroughly established as a legitimate procedure, though its superiority to perineal incision in various cases is by no means fully appreciated by the profession. Its employment for the removal of calculi and vesical tumors, for prostatectomy, for the topical treatment of ulcerated surfaces, tuberculous and other, for temporary drainage and rest of the organ, needs no special advocacy in this presence. In these classes of cases one object which the surgeon almost invariably has in mind is the ultimate closure of the artificial opening. In some instances, however, great benefit to the patient results from suprapubic-cystotomy, performed with the intention of creating permanent drainage. For example, in marked hypertrophy of the prostate, where as severe an operation as prostatectomy is contra-indicated by the feebleness of the patient, or is prohibited by his ill-advised opposition, permanent drainage is often desirable—sometimes, indeed, imperatively demanded. To this procedure, undertaken for

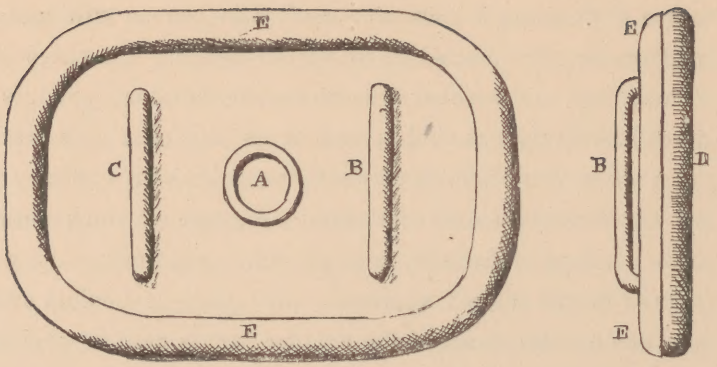
the especial purpose indicated, the name *Cystostomy* (*Κύστις* +*στόμα*) may properly be applied, as a term of convenience, signifying the formation of a mouth, or fistula, in the bladder.

The objects of this paper are, first, to call attention to the importance of suprapubic cystostomy, as distinguished from cystotomy; and, second, to describe a little device, which has served excellently in carrying out certain details of the after-treatment. The apparatus is so simple that it is quite probable that it has been invented before; but it has not been my fortune to see, or even to meet with a description of, such an appliance.

After the parts around the aperture have healed, and there is a perfect continuity between the mucous membrane of the bladder and the skin of the hypogastrium, if the intravesical difficulties have been relieved by the operation, the patient suffers only—or, at all events, mostly—from the constant flow of fluid over the abdominal surface. The apparatus is designed to prevent this annoyance, which is so serious as to make the patient's life wretched by keeping the skin drenched with, and his person constantly odorous of, urine.

It consists, first, of a plate of silver, about eight centimeters long and a little more than five centimeters wide. The corners are rounded, and the entire marginal portion is grooved on the posterior surface, a transverse section of this gutter representing nearly a semicircle with a diameter of seven millimeters. Into this groove is cemented a piece of soft, pure-rubber tubing, with a diameter slightly exceeding that of the groove. One end of the tubing is fastened to the other end with cement, so that an air-cushion is formed. In the

centre of the plate is a circular perforation, seven millimeters in diameter, surrounded by a narrow collar. On the front of the plate, midway between the centre and each end, is a silver bar, firmly attached at each of its extremities, and leaving a space of three millimeters between its hind surface and the anterior surface of the plate. A piece of thick-walled rubber tubing of suitable size and thirty centimeters long is secured in the central aperture. The plate is applied so as to centre on the stoma of the bladder, and is held in place by bands like those of the ordinary elastic truss—that is to say, first, by an elastic belt around the ilia, with tips of inelastic webbing, which are looped around the bars, and buckled to the proper degree of tension; and, second, by two perineal bands of rubber tubing, fastened behind to the belt by loops of inelastic webbing, and in front to the bars by metal hooks. The tube from the central opening is conducted to the bag of a rubber day-urinal, which is strapped to the inside of one of the thighs. The air-cushion on the margin of the posterior surface of the plate, being held firmly against the abdominal wall around the stoma—but at a sufficient distance from its edges to avoid chafing—prevents the leakage of urine, all of the fluid being carried off by the conduit to the urinal.



FRONT VIEW. PROFILE.

A. The central aperture, surrounded by a collar for the support of the tube leading to the urinal.

B, C. The bars for the webbing loops at the ends of the belt, and for the hooks of the perineal bands.

D. The air-cushion at the margin of the back surface.

E. The rim, convex in front, concave behind, for holding the air-cushion.

An illustrative case will emphasize the description, and also show the utility of the operation for permanent drainage.

On the 6th of October, 1891, I was called to see a gentleman, sixty-nine years of age, who had suffered for several years on account of an enlarged prostate. For two years his health had been failing, and during the recent months the decline had been rapid. He was obliged to empty the bladder at least every hour, and often much more frequently—a procedure impossible without the aid of a catheter, and atrociously painful with it. A prominent surgeon had seen him in consultation with the local practitioner, and advised nothing in addition to the usual medicinal treatment, except daily washing of the bladder with boric-acid solution. The urine was as thick as turbid coffee, which it resembled in color,

being heavily loaded with blood. The hemorrhage was so profuse, the pain so severe, and both so constant, that, when I first saw the patient, it seemed that he could live but a week or a fortnight, unless speedy relief could be afforded him. The suprapubic operation was proposed, as being the least serious and most satisfactory measure which offered hope; but the idea was rejected. A night of rapidly augmented agony, however, produced a change of opinion, and I was summoned to do whatever I thought best.

On entering the bladder, the finger discovered two calculi, as large as good-sized filberts, and they were removed. The mucosa was soft and pulpy; the prostate was enormously hypertrophied. Prostatectomy was not attempted, in consideration of the perilous debility of the patient. The margins of the vesical opening were stitched to the skin, and the patient was put to bed, with a flexible siphon extending from the cavity of the viscus to a vessel beside the bed. The siphon kept the patient almost perfectly dry, flow of urine over the surface of the abdomen being only occasional and slight.

For several days some anodyne was needed, but in progressively diminishing doses. The bleeding ceased in a few hours, and did not recur. In about two weeks the appliance here described was adjusted, and the patient was able to sit up with comfort. His strength quite rapidly increased, and he was soon able to walk with ease, and to attend to office business. On the 25th of December he was attacked by the then prevailing epidemic of influenza, and, after an illness of only three days, died. But the two months' trial was a per-

fect demonstration of the value of the apparatus, and I see no reason for doubting that it would have continued to give as excellent satisfaction indefinitely.

The siphon employed, while the mucous and cutaneous membranes were growing together at the circumference of the opening, consisted merely of a piece of rubber tubing with two holes cut in the sides near the bladder end. This tube was filled with warm water, and its extremities placed respectively in the bladder and the chamber vessel. It has worked so nearly perfectly in my practice that I am at a loss to account for the failure of surgeons generally to adopt this simple and useful device, in the place of sopping up the outpouring urine with voluminous cloths of absorptive material, or permitting it to inundate the abdomen, and form a pool in which the patient must lie. It is often, perhaps generally, desirable to use the siphon, instead of the other apparatus, when the patient is in bed, thus relieving him of the dangers attending uninterrupted pressure of the plate and its retaining bands.

SUMMARY.—The operation of establishing an opening in the bladder above the symphysis pubis for the permanent drainage of that reservoir is occasionally desirable, and should be performed much more frequently than it is at present.

The name "Suprapubic Cystostomy" briefly, but sufficiently, indicates the character and purpose of the operation.

The employment of the flexible siphon during the healing of the wound and afterwards, when the patient is in bed, is preferable to other methods of caring for the urine.

The use of an apparatus such as is here described enables the patient to attend to light work with comfort, and prevents the annoyance and suffering, which, without some such device, must inevitably follow this useful and sometimes life-saving operation.

SUPPLEMENTARY NOTE.

In the six months which have passed since this paper was presented to the American Surgical Association opportunities for further study of the subject have been afforded, with the result of strengthening the opinion that Cystostomy is worthy of an extensive trial in the cases for which it is especially recommended, namely, those of prostatic enlargement, in which the usual remedies fail to give relief.

Prostatectomy, either complete or partial, will probably always be a procedure of great peril—to some extent on account of the age of the patients, in a higher degree because of their debility, but mostly from the almost invariable presence of chronic cystitis, which keeps the freshly-made and somewhat extensive wound-surface drenched with peculiarly foul pus. Cystostomy is, in comparison, attended with little danger; and, while it does not do away with the hypertrophy of the prostate, it relieves the patient to a large extent of the direful consequences of that condition—the retention and decomposition of the urine, the pain of micturition, the inflammation of the bladder, the formation of stones, the frequent hemorrhage, and the constant and ever-increasing danger of renal involvement.

In mild cases of prostatic enlargement the practice of aseptic catheterization with antiseptic irrigation will continue to hold the place of honor. But, in an advanced stage, where the suffering is great and the general health seriously implicated, and particularly where the conventional treatment is unsatisfactory, nothing else seems to me to offer as hopeful a prospect of relief as Cystostomy, which affords a ready means of removing calculi and of washing out the bladder, cures the cystitis by putting the viscus entirely at rest, takes away the liability of extension of the inflammation to the kidneys, converts the urinary reservoir into a channel, and substitutes a condition, which, at its worst, is only a serious inconvenience, for one which incapacitates the patient for labor, makes his life a wretched burden, and finally kills him by inches with pain and exhaustion.

The men who recover after complete prostatectomy are cured, for the reason that the cause of their trouble is removed; while those who submit to Cystostomy are never free from annoyance, because the obstruction which originated their difficulties still remains. But a large proportion of the patients on whom the former operation is performed perish in consequence of it; and very few die on account of the latter. It becomes, therefore, a question between a very hazardous procedure with entire relief, and a very safe one with relief which is not perfect. That Cystostomy will be the choice of the large majority of those to whom this alternative is fairly presented appears to me highly probable.